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# **WATER SUPPLY OUTLOOK FOR WESTERN UNITED STATES**

Including Columbia River Drainage in Canada



**U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE**

Collaborating with  
CALIFORNIA DEPARTMENT of WATER RESOURCES  
and  
BRITISH COLUMBIA DEPARTMENT of  
LANDS, FORESTS and WATER RESOURCES

AS OF  
**MAR. 1, 1975**

## TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

*Cover Photo: Cabins near Sacajawea Snow Course  
in Bridger Mountains, Montana.*

SCS PHOTO 11-P480-15

## PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 111, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	204 E. 5th. Ave., Room 217, Anchorage, Alaska 99501
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82601

## PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



# **WATER SUPPLY OUTLOOK FOR WESTERN UNITED STATES**

**Including Columbia River Drainage in Canada**

ISSUED

MARCH 1, 1975

The Soil Conservation Service coordinates snow surveys conducted by its staff and many cooperators, including the Bureau of Reclamation, Corps of Engineers, Forest Service, National Park Service, NOAA, National Weather Service, Geological Survey, and other Federal Agencies, Departments of State Government, Irrigation Districts, Power Companies, and others.

The Department of Water Resources coordinates snow surveys in California.

The Water Resources Service, Department of Lands, Forests, and Water Resources directs snow surveys in British Columbia.

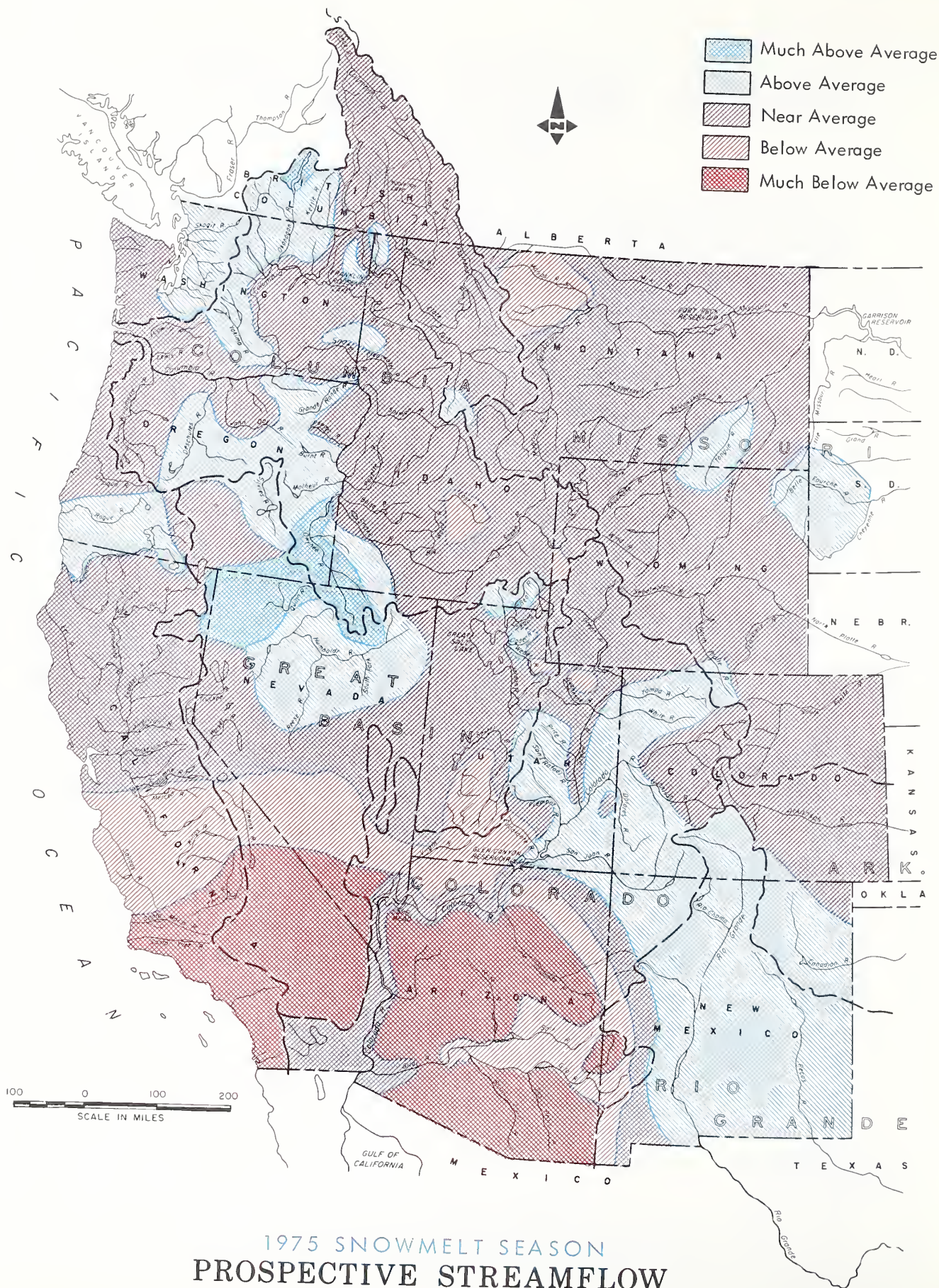
This report was prepared by the Water Supply Forecasting Unit, Engineering Division, Soil Conservation Service, from data supplied by Snow Survey Supervisors of the Soil Conservation Service in the States of Alaska, Arizona, Colorado and New Mexico, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming.

Data from California was supplied by the Chief, Water Supply Forecast and Snow Survey Unit, Department of Water Resources.

Data from British Columbia was supplied by the Chief, Hydrology Division, Water Investigations Branch, Department of Lands, Forests and Water Resources.

U. S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
KENNETH E. GRANT, ADMINISTRATOR



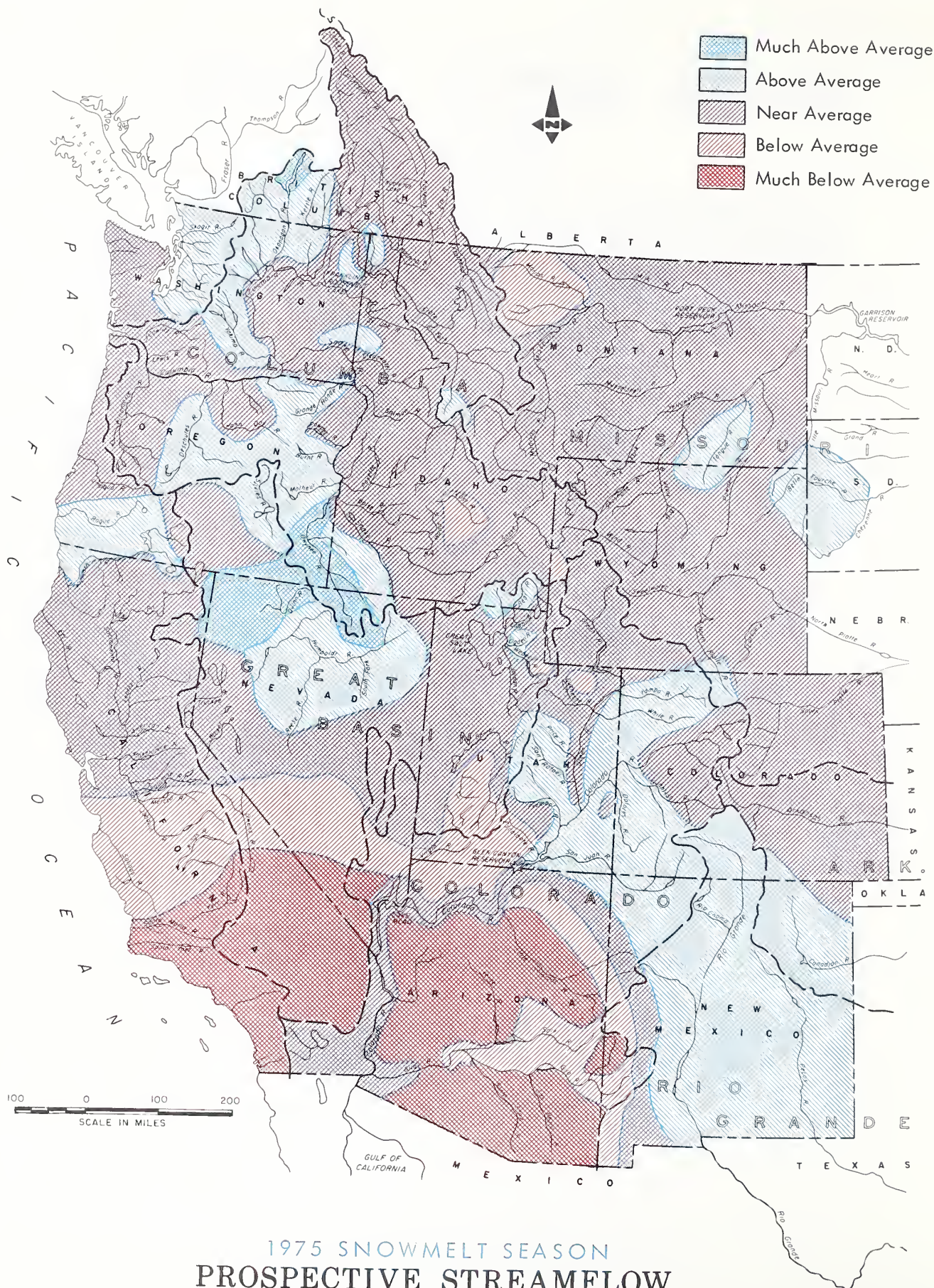


1975 SNOWMELT SEASON  
PROSPECTIVE STREAMFLOW  
AS OF MARCH 1, 1975









1975 SNOWMELT SEASON  
PROSPECTIVE STREAMFLOW  
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# WATER SUPPLY OUTLOOK

1975 SNOWMELT SEASON  
MARCH 1, 1975

THE WATER SUPPLY OUTLOOK CONTINUES FAIR TO EXCELLENT FOR MOST MAJOR IRRIGATED WESTERN AREAS. FEBRUARY STORMS GREATLY IMPROVED THE OUTLOOK, PARTICULARLY IN NEW MEXICO, NORTHERN CALIFORNIA, NORTHERN NEVADA, OREGON AND CENTRAL IDAHO. RESERVOIR STORAGE IS NEAR AVERAGE OR ABOVE.

February storms improved the water supply outlook picture to the point that if storms during the remainder of the season are near average or above, water supplies should be adequate or better for most irrigated areas of the West, except for a few small areas above reservoirs, or where reservoir storage capacity is inadequate.

Carryover reservoir storage is near or above average and should provide sufficient supplemental supplies to provide satisfactory water for those major irrigated areas where current streamflow prospects are below normal. This condition applies particularly to Arizona and southern California where forecasts indicate most streams will yield near two-thirds to three-fourths of their usual amounts.

Areas where next summer's streamflow is anticipated to be near 10 to 30 percent above average or higher include most of New Mexico; southern and northern sections of western Colorado; northern Nevada; southwestern, central and eastern Oregon; most streams draining from Washington's Cascade Mountains, and smaller areas in remaining states. Outlook for most remaining areas is near average.

Typical streamflow forecast percents for some of the larger western rivers are as follows: Columbia River at The Dalles, Oregon-105 percent; Missouri River near Landusky, North Dakota, 101 percent; North Platte near Sinclair, Wyoming-112 percent; Arkansas at Salida, Colorado-109 percent; Rio Grande at Otowi Bridge, New Mexico-125 percent; Colorado River Inflow to Lake Powell, Arizona-111 percent; Utah Lake Inflow, Utah-106 percent; Humboldt at Palisade, Nevada-109 percent; Sacramento River Inflow to Shasta, California-105 percent.

The California Department of Water Resources reports that water supply prospects for 1975 were substantially improved during the last month. Heavy precipitation over the northern two-thirds of the State has boosted snow stored water, increased lower elevation runoff, and brought reservoir storage up to near normal

amounts for March 1. South and east of the Central Valley, water supply conditions continue to be below normal, especially in the South Coastal and Desert areas.

Forecasts for streams in Alaska now range from 80 percent for the Salcha River near Salchaket, to 131 percent for Porcupine at Fort Yukon.

## MISSOURI BASIN

Most Montana watersheds have a near average snowpack, the principal exception is along the Continental Divide from the Dearborn River northward across the Sun, Teton and Marias rivers. Here the snow is 10 to 15 percent below average. Small areas of above normal snow are found near Butte, on extreme upper headwaters of the Big Hole River, on the north end of the Gallatin Range, and on the north face of the Absaroka-Beartooth Mountains.

In Wyoming, the snowpack varies from 12 percent below average on the upper Yellowstone to 7 percent above in the Big Horn Mountains.

On the North Platte River snow cover is 4 percent below average. The South Platte is slightly better with average conditions. Wyoming reports that evapo-sublimation losses from the mountain snowpack are near the minimum of record on the North Platte, are well below normal in the Big Horn Mountains and near to slightly above average in the west.

Most Montana streams now have prospects of yielding within about 8 percent of their average amounts. Principal exception is the area of low snow from the Dearborn to the Marias rivers, where present conditions indicate streams will yield 15 to 20 percent less than usual.

In Wyoming forecasts range from 12 percent below average on the Little Popo Agie near Lander to 20 percent above average on the North

# SUMMARY OF SNOW WATER EQUIVALENT MEASUREMENTS

MAJOR BASIN AND SUB - WATERSHED	WATER EQUIVALENT IN PERCENT OF:		MAJOR BASIN AND SUB - WATERSHED	WATER EQUIVALENT IN PERCENT OF:	
	LAST YEAR	AVERAGE		LAST YEAR	AVERAGE
MISSOURI BASIN			SNAKE BASIN		
Jefferson	95	107	Snake above Jackson, Wyo.	80	92
Madison	83	99	Snake above Hiese, Idaho	85	94
Gallatin	98	101	Snake abv. American Falls Res.	84	97
Missouri Main Stem	93	101	Henry's Fork	78	95
Yellowstone	101	100	Southern Idaho Tributaries	92	117
Shoshone	95	102	Big and Little Wood	64	92
Wind	93	93	Boise	71	104
North Platte	83	96	Owyhee	105	160
South Platte	95	100	Payette	75	109
ARKANSAS BASIN			Malheur	100	145
Arkansas	110	123	Weiser	74	112
Cucharas-Purgatoire	85	116	Burnt	75	120
RIO GRANDE BASIN			Powder	80	120
Rio Grande (Colo.)	139	121	Salmon	72	103
Rio Grande (New Mexico)	114	142	Grande Ronde	80	125
Pecos	94	136	Clearwater	72	99
COLORADO BASIN			LOWER COLUMBIA BASIN		
Green (Wyo.)	92	94	Yakima	90	145
Yampa - White	107	117	Umatilla	60	130
Duchesne	106	97	John Day	85	120
Price	88	112	Deschutes - Crooked	98	132
Upper Colorado	93	106	Hood	58	117
Gunnison	102	114	Willamette	70	125
San Juan	116	117	Lewis	69	91
Dolores	113	130	Cowlitz	80	113
Virgin	80	91	PACIFIC COASTAL BASIN		
Gila	216	107	Puget Sound	77	132
Salt	138	118	Olympic Peninsula	63	98
GREAT BASIN			Umpqua - Rogue	95	150
Bear	89	105	Klamath	105	135
Logan	87	100	Trinity	90	115
Ogden	92	119	CALIFORNIA		
Weber	97	114	CENTRAL VALLEY		
Provo - Utah Lake	95	115	Upper Sacramento	90	120
Jordan	88	115	Feather	125	125
Sevier	80	101	Yuba	120	120
Walker - Carson	95	96	American	110	110
Tahoe - Truckee	107	114	Mokelumne	115	110
Humboldt	117	148	Stanislaus	110	105
Lake Co. (Oregon)	130	145	Tuolumne	110	105
Harney Basin (Oregon)	125	140	Merced	110	100
Owens (California)	75	75	San Joaquin	95	85
UPPER COLUMBIA BASIN			Kings	95	95
Columbia (Canada)	84	103	Kaweah	90	80
Kootenai (USA & Canada)	80	102	Tule	95	65
Clark Fork	89	107	Kern	70	65
Bitterroot	89	116	Data for California Watersheds supplied by Dept. of Water Resources, and for British Columbia Watersheds by Dept. of Lands, Forests and Water Resources.		
Flathead	79	103			
Spokane	63	100	Average is for the 1958-72 period. California averages are for the period 1931-70. Based on Selected Snow Courses determined by Distribution within the Basin, Length of Record and Re- petitive Monthly Measurement Schedules.		
Okanogan	86	126			
Methow	70	110			
Chelan	88	124			
Wenatchee	81	129			



Platte near Northgate. In the Big Horn Mountains, the Tongue River and Shell Creek are forecast at near 15 percent above average. Flow of the Cheyenne and Belle Fourche rivers is expected to be similar. Most other streams are expected to run within about 5 percent of average.

In Colorado, forecasts for major tributaries of the South Platte range from 5 percent below average on the Cache La Poudre near Fort Collins, to 10 percent above average on Clear Creek at Golden.

Carryover reservoir storage is 95 percent average in Montana, 111 percent on Wyoming's Wind River, 164 percent on the North Platte and 102 percent on the South Platte.

## ARKANSAS BASIN

Snowfall during February brought a substantial improvement in the water outlook of the Arkansas Basin. The present snowpack generally ranges from 15 to 25 percent above average, but due to dry mountain soils underlying the snow, prospective streamflow next summer will be somewhat reduced.

Assuming that mountain snowfall and spring rains are near normal during the remainder of the season, the Arkansas River at Salida is expected to yield about 9 percent more than the normal flow. At 8 percent above normal, outlook for the Purgatoire is similar. Outlook for the Cucharas and Canadian rivers is better, with streamflow expected to be near 20 percent more than usual amounts.

Reservoir storage is very poor on the Arkansas River, with a combined storage in John Martin and Turquoise of only 45,000 acre-feet. This is about a third of average. In New Mexico on the Canadian River, storage in Conchas Reservoir is better, but at 71 percent is still well below average.

## RIO GRANDE BASIN

Several storms during February which passed across New Mexico and southern Colorado greatly improved the mountain snowpack condition. The snowpack now ranges from 21 percent above average on the upper Rio Grande in Colorado to 42 percent above on the New Mexico tributaries, with an individual watershed high of 47 percent above normal on Red River. At 36 percent more than usual, snow cover is also excellent on the Pecos River. Mountain soils under the snow are dry in most areas and will reduce water yield from the snow.

Flow of the Rio Grande near Del Norte, Colorado is now expected to be 17 percent more

than usual. Inflow to the river system from the Conejos is now expected to be 11 percent above average, but with much more - 34 percent above - expected to come from the Chama River. Inflow from smaller tributaries will range between the percents for these two streams. Rio Grande flow at Otowi Bridge is now forecast at 25 percent above average. Snow cover on the Pecos is expected to yield near 39 percent above average streamflow.

Carryover reservoir storage is down from last year, but still remains well above average. Elephant Butte Reservoir now holds about three-fourths more than its usual amount for this time of year.

Water outlook prospects for next summer are good.

## COLORADO BASIN

The present snow cover in the upper Colorado River Basin shows less variability than usual, and is near or above average in most areas. Except for a small pocket in the central part of Utah's Uinta Mountains where the snow is near three-fourths average, elsewhere the snowpack generally ranges from 6 percent less than usual on Wyoming's upper Green River to 30 percent above average on Colorado's Dolores River.

Snow cover for the entire upper Colorado Basin is 10 percent more than the normal amount.

Soil moisture conditions underlying the snowpack tend to be below average. Although this will reduce water yields, snow cover is sufficient to more than offset this effect and provides the prospect of an adequate to good water supply during the coming summer for most areas. This assumes normal or better snowfall and spring rains during the balance of the season. Dry weather could cause limited shortages, particularly on Utah's Uinta and Whiterocks rivers where streamflow is already expected to fall near 25 percent below average.

Flow of most Wyoming streams is expected to be about 5 to 10 percent less than usual. In northern Colorado, the Yampa and White rivers have current prospects of yielding 15 to 20 percent above average. In central sections, yield should be near average to 10 percent above on watersheds such as the upper Colorado, Roaring Fork and the Gunnison River. In the south, prospects are for streamflow to range from near 20 to 35 percent above average on the Dolores, Uncompahgre, Animas and San Juan rivers. Except for the small area noted above, flow of Utah tributaries will range from 10 percent below average to 25 percent above.

Inflow to Flaming Gorge is forecast at 10 percent below average. After contributions from the Yampa, White and Duchesne rivers, flow

# SELECTED STREAMFLOW FORECASTS

MARCH 1, 1975

STREAM AND STATION	FORECASTS THIS YEAR		Forecast Period	Last Year's Flow In (1,000 A.F.)
	Flow In (1,000 A.F.)	Percent of Average		
SASKATCHEWAN				
St. Mary near Babb, Montana <u>1/</u>	490	100	April-Sept.	
UPPER MISSOURI				
Beaverhead near Grant, Montana <u>2/</u>	140	100	April-Sept.	151
Big Hole near Melrose, Montana	810	108	April-Sept.	
Jefferson at Silver Star, Montana	1,000	103	April-Sept.	
Madison near Grayling, Montana <u>3/</u>	482	100	April-Sept.	605
Gallatin near Gateway, Montana	570	107	April-Sept.	624
Sun at Gibson Dam, Montana <u>4/</u>	475	80	April-Sept.	
Belt near Monarch, Montana	130	106	April-Sept.	
Marias near Shelby, Montana <u>5/</u>	480	86	April-Sept.	554
Missouri near Landusky, Montana <u>6/</u>	4,700	99	April-Sept.	
near Williston, North Dakota <u>7/</u>	11,900	101	April-Sept.	
S. Fk. Musselshell above Martinsdale, Montana	51	102	April-Sept.	
Milk at Eastern Crossing, Montana	265	93	March-Sept.	
Yellowstone at Yellowstone Lake Outlet, Wyo.	740	90	April-Sept.	1,134
at Corwin Springs, Montana	2,060	103	April-Sept.	2,720
at Miles City, Montana <u>8/</u>	6,500	102	April-Sept.	
Clarks Fork near Belfry, Montana	630	104	April-Sept.	
Shoshone below Buffalo Bill Res., Wyo. <u>9/</u>	1,864	104	April-Sept.	1,105
Wind near Dubois, Wyoming	104	102	April-Sept.	137
at Riverton, Wyoming <u>10/</u>	675	102	April-Sept.	756
below Boysen Res., Wyoming <u>11/</u>	957	95	April-Sept.	1,177
Bull Lake Creek near Lenore, Wyoming	180	99	April-Sept.	199
Little Popo Agie near Lander, Wyoming	42	88	April-Sept.	60
Tensleep near Tensleep, Wyoming	81	102	April-Sept.	
Medicine Lodge near Hyattville, Wyoming	21	99	April-Sept.	
Shell Creek near Shell, Wyoming	86	116	April-Sept.	
Big Horn near St. Xavier <u>8/</u>	1,800	97	April-Sept.	
Tongue near Dayton, Wyoming	129	114	April-Sept.	122
No. Fork Powder near Hazelton, Wyoming	10.7	107	April-Sept.	7.0
PLATTE				
North Platte near Sinclair, Wyoming	725	112	April-Sept.	915
Encampment near Encampment, Wyoming	148	105	April-Sept.	205
Laramie & Pioneer Canal, nr Woods, Wyo. <u>12/</u>	125	98	April-Sept.	158
Big Thompson at Drake, Colorado <u>13/</u>	105	98	April-Sept.	
Clear at Golden, Colorado <u>14/</u>	140	110	April-Sept.	
St. Vrain at Lyons, Colorado <u>15/</u>	77	102	April-Sept.	
Cache La Poudre near Fort Collins, Colorado <u>16/</u>	235	95	April-Sept.	
ARKANSAS				
Arkansas at Salida, Colorado <u>17/</u>	340	109	April-Sept.	
Cucharas near LaVeta, Colorado	12	120	April-Sept.	
Purgatoire at Trinidad, Colorado	41	108	April-Sept.	
RIO GRANDE				
Rio Grande near Del Norte, Colorado <u>18/</u>	545	117	April-Sept.	
at Otowi Bridge, New Mexico <u>19/</u>	658	125	March-July	
Conejos near Mogote, Colorado <u>20/</u>	205	111	April-Sept.	
El Vado Res., Inflow, New Mexico	255	134	March-July	
Pecos at Pecos, New Mexico	57	139	March-July	
UPPER COLORADO				
Colorado, Grandby Res. Inflow, Colorado <u>21/</u>	225	99	April-Sept.	
near Dotsero, Colorado <u>22/</u>	1,510	105	April-Sept.	
near Cameo, Colorado <u>23/</u>	2,500	105	April-Sept.	
near Cisco, Utah <u>24/</u>	3,400	120	April-July	
Lake Powell Inflow, Arizona <u>25/</u>	7,607	111	April-July	
Roaring Fork at Glenwood Springs, Colorado <u>26/</u>	750	105	April-Sept.	
Uncompahgre at Colona, Colorado	180	134	April-Sept.	

Forecasts in California provided by Department of Water Resources.  
Average is for 1958-72 period except California. California is computed for 1921-70 period.  
Forecasts assume average Effective Climate Conditions from Date Through Snow Melt Season.

Explanatory Notes on Forecasts listed on Inside Back Cover.



## SELECTED STREAMFLOW FORECASTS

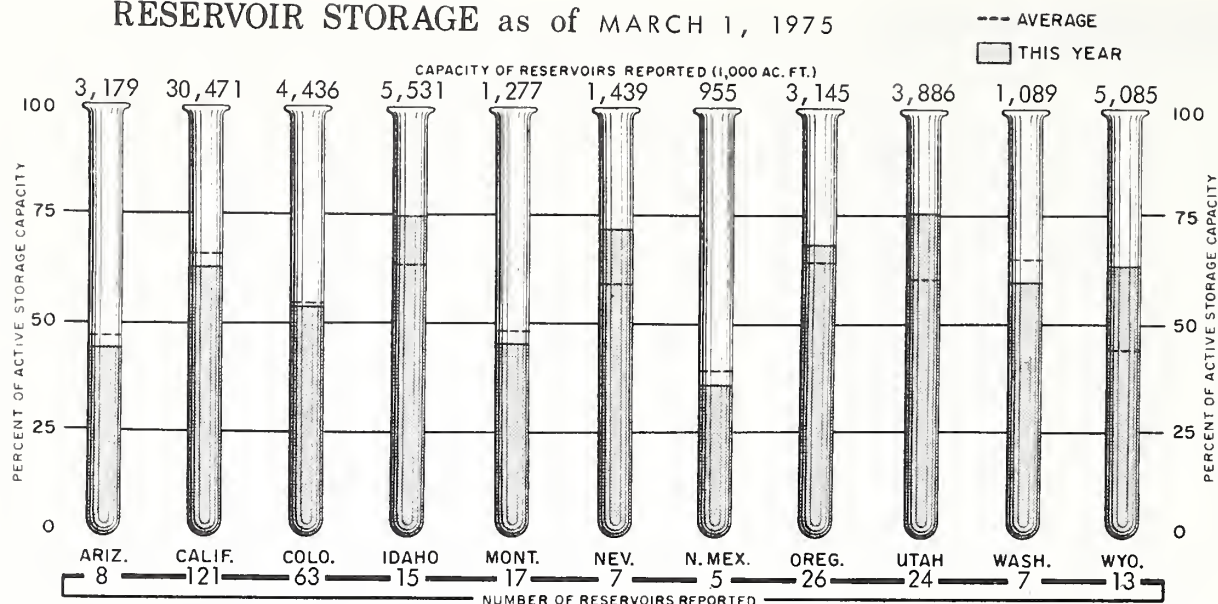
MARCH 1, 1975

STREAM AND STATION	FORECASTS THIS YEAR		Forecast Period	Last Year's Flow In (1,000 A.F.)
	Flow In (1,000 A.F.)	Percent of Average		
UPPER COLORADO (continued)				
Gunnison, Blue Mesa Res. Inflow, Colorado <u>27/</u> near Grand Junction, Colorado <u>28/</u>	825 1,300	104 110	April-Sept. April-Sept.	
Dolores at Dolores, Colorado	280	121	April-Sept.	
Green at Warren Bridge, Wyoming	305	93	April-Sept.	389
at Green River, Wyoming <u>29/</u>	928	94	April-Sept.	1,165
Flaming Gorge Res. Inflow, Utah <u>27/</u> at Green River, Utah <u>30/</u>	1,060 2,662	90 94	April-July April-July	
Big Sandy near Big Sandy, Wyoming	52	91	April-Sept.	67
Yampa at Steamboat Springs, Colorado near Maybell, Colorado	328 1,050	120 116	April-Sept. April-Sept.	
Little Snake near Dixon, Wyoming	285	95	April-Sept.	
White near Meeker, Colorado	350	119	April-Sept.	
Strawberry at Duchesne, Utah <u>40/</u>	54	96	April-July	
Duchesne near Tabiona, Utah <u>31/</u> at Randlett, Utah <u>40/</u>	95 200	91 91	April-July April-July	
Lakefork below Moon Lake, Utah <u>32/</u>	60	87	April-July	
Uinta near Neola, Utah	65	74	April-July	
Whiterocks near Whiterocks, Utah	42	72	April-July	
Price, Scofield Res. Inflow, Utah <u>33/</u>	43	126	April-July	
Cottonwood near Orangeville, Utah <u>34/</u>	50	109	April-July	
San Juan, Navajo Res. Inflow, New Mexico <u>27/</u> near Bluff, Utah <u>35/</u>	775 1,207	130 142	April-July April-July	
Animas at Durango, Colorado	525	124	April-Sept.	
LOWER COLORADO				
Virgin near Virgin, Utah	41	85	April-June	
Little Colorado above Lyman, Arizona	6	61	March-June	0.9
Gila near Solomon, Arizona	66	73	March-May	14.3
Frisco at Clifton, Arizona	30	64	March-May	8.0
Salt at Intake, Arizona	170	76	March-May	81
Tonto above Roosevelt, Arizona	10	43	March-May	7.7
Verde above Horseshoe Dam, Arizona	70	61	March-May	45
GREAT BASIN				
Bear at Utah-Wyo. State Line at Harer, Idaho	102 269	91 91	April-July April-Sept.	126
Smith's Fork near Border, Wyoming	109	94	April-Sept.	141
Thomas Fork near Wyo.-Ida. State Line	29	90	April-Sept.	39
Logan near Logan, Utah <u>36/</u>	112	99	April-July	153
Ogden, Pine View Res. Inflow, Utah <u>27/</u>	136	124	April-June	165
Weber near Oakley, Utah	88	86	April-June	127
Provo near Hailstone, Utah <u>37/</u>	103	101	April-July	
Strawberry Res. Inflow, Utah	40	89	April-July	
Utah Lake Net Inflow, Utah	220	106	April-July	
Big Cottonwood near Salt Lake City, Utah	38	106	April-July	
Beaver near Beaver, Utah	16.8	84	April-July	
Sevier near Hatch, Utah near Gunnison, Utah	31 35	76 90	April-July April-July	
So. Fork Humboldt near Elko, Nevada	85	129	April-July	
Humboldt at Palisades, Nevada	210	109	April-July	160
Truckee at Farad, California <u>38/</u>	280	105	April-July	297
East Carson near Gardnerville, Nevada	175	96	April-July	228
West Carson at Woodsfords, California	50	96	April-July	65
East Walker near Bridgeport, California <u>39/</u>	66	98	April-August	80
West Walker near Coleville, California	144	99	April-July	173
Donner und Blitzen near Frenchglen, Oregon	63	119	April-Sept.	
Silvies near Burns, Oregon	92	123	April-Sept.	
Chewaucan near Paisley, Oregon	94	108	March-July	145
Deep above Adel, Oregon	77	99	March-July	
Bidwell near Ft. Bidwell, California	15	130	April-July	15.5
Owens, below Long Valley Res., California	45	72	April-July	65

Forecasts in California provided by Department of Water Resources.  
Average is for 1958-72 period except California. California is computed for 1921-70 period.  
Forecasts assume average Effective Climate Conditions from Date Through Snow Melt Season.

Explanatory Notes on Forecasts listed on Inside Back Cover.

# RESERVOIR STORAGE as of MARCH 1, 1975



of the Green River at Green River, Utah is expected to be 6 percent less than average. Flow of the Colorado near Cisco, Utah is forecast at 20 percent above average, while the San Juan near Bluff, Utah is forecast at 42 percent above average. Combining forecasts for these streams gives a present prospect for the April-July inflow to Lake Powell to be 11 percent above average.

Storage in irrigation reservoirs in the Upper Basin is near or above average.

In the lower Colorado Basin, flow of the Virgin River near Virgin, Utah is forecast at 15 percent below average, while the Santa Clara is expected to yield an average amount. In Arizona, February storms raised streamflow prospects on all streams except the Verde.

Storage in Arizona reservoirs is slightly below average for this time of year, and much below that of last year. Salt River Project reservoirs are half full and contain 87 percent of the 1958-72 average. San Carlos Reservoir is only a fourth full, but this is slightly above average.

Salt River Project streams are forecast to yield almost twice that received last year, but this will still be considerably less than average. Similarly, the Gila River at the head of the Safford Valley is predicted to yield a below average amount, but more than four times that produced last year.

Water supplies will be adequate in all areas of Arizona, but carryover reservoir supplies for next year will be low.

With the exception of smaller watersheds in southern portions of the Great Basin, the main mountain snowpack ranges from a low of 10 percent less than average on the Walker River of the Sierra-Nevada Mountains to near 50 percent above on Nevada's Humboldt River. At 60 percent above average, the smaller watersheds of California's Surprise Valley have the greatest snow cover. Snow on southern watersheds is lowest in southern Nevada at only 30 percent of average.

Stream forecasts for the Sevier, Beaver and smaller watersheds near Cedar City, Utah, for California's Owens River, small streams in southern Nevada range from about 10 to 30 percent below average. One small area of northern Utah is also expected to yield near 15 to 25 percent less than usual. This is upper Weber River and Chalk Creek near Coalville.

Highest streamflow is expected from streams in California's Surprise Valley. Here, forecasts range from 30 to as much as 80 percent more than usual amounts. Nevada's North Fork of the Humboldt is also currently expected to yield near 37 percent more than usual. Other watersheds where snowmelt runoff is expected to be from 10 to 30 percent above average include Oregon's Donner und Blitzen and Silvies rivers, remaining tributaries to Nevada's Humboldt River, Idaho's Montpelier Creek, Cub and Malad rivers, and Utah's Ogden and Little Bear rivers, the Lost, East Canyon, Farmington and Parleys creeks in northern Utah, and tributaries to the San Pitch River in central Utah.

Remaining watersheds of the Basin have current prospects of producing runoff that will be within 10 percent of average.

Reservoir storage in Nevada is excellent, with major reservoirs containing 123 percent of aver-

## GREAT BASIN



## STORAGE IN LARGE RESERVOIRS

MARCH 1, 1975

BASIN AND NAME OF RESERVOIR	CAPACITY (1,000 A.F.)	STORAGE (1,000 A.F.)	STORAGE PERCENT AVERAGE	BASIN AND NAME OF RESERVOIR	CAPACITY (1,000 A.F.)	STORAGE (1,000 A.F.)	STORAGE PERCENT AVERAGE
UPPER MISSOURI				UPPER COLUMBIA			
Belle Fourche	185	94	93	Chelan	676	155	66
Boysen	550	300	114	Coeur d'Alene	225	59	36
Buffalo Bill	373	112	140	Duncan	1,347	233	151
Canyon Ferry	2,043	1,441	90	Flathead	1,791	816	80
Fort Peck	19,410	15,703	120	Hungry Horse	3,428	1,912	82
Garrison	24,790	18,828	134	Kootenay	673	449	107
Hebgen	377	257	127	Lake Koocanusa	4,934	442	---
Keyhole	192	128	171	Lower Arrow	3,083	421	---
Lake Francis Case	5,816	3,470	94	Noxon Rapids	335	310	103
Lake Sharp	1,900	1,755	103	Pend Oreille	1,155	178	39
Oahe	23,630	18,976	123	Roosevelt	5,232	4,305	151
Tiber	1,347	509	88	Upper Arrow	4,061	542	127
Bighorn	1,356	777	97				
PLATTE				LOWER COLUMBIA			
So. Platte in Colo. (30)	1,085	795	102	Cougar	155	70	167
City of Denver (7)	622	443	96	Detroit	300	134	121
Colo-Big Thompson (3)	718	498	119	Green Peter	270	135	123
Glendo	784	401	110	Hills Creek	200	101	168
Pathfinder	1,016	908	237	Lookout Point	337	139	143
Seminole	1,010	479	143	Prineville	153	98	88
ARKANSAS				Wickiup	200	189	112
Conchas	273	132	71	Yakima Res. (5)	1,066	641	93
John Martin	354	7	8	SNAKE			
Turquoise	120	38	---	American Falls	1,125	1,060	134
RIO GRANDE				Anderson Ranch	423	270	114
Elephant Butte	2,195	463	172	Arrowrock	287	280	113
El Vado	195	89	---	Brownlee	980	502	113
UPPER COLORADO				Cascade	653	348	107
Blue Mesa	830	368	104	Dworshak	2,016	436	---
Flaming Gorge	3,749	3,081	194	Jackson	847	624	117
Navajo	1,696	935	---	Lucky Peak	278	102	114
Powell	25,002	17,199	205	Owyhee	715	467	104
Starvation	152	89	---	Palisades	1,200	967	119
LOWER COLORADO				Warm Springs	191	130	135
Havasu	619	546	101	PACIFIC COASTAL			
Mead	26,159	19,928	116	Clair Engle	2,448	1,935	92
Mohave	1,810	1,657	98	Clear Lake	440	289	127
Salt River Res. (4)	1,755	1,040	94	Nacimiento	350	290	148
San Carlos	949	252	132	Ross	1,404	782	161
Verde River Res. (2)	318	48	33	Upper Klamath	584	362	86
GREAT BASIN				CALIFORNIA CENTRAL VALLEY			
Bear	1,421	1,088	113	Almanor	1,308	842	114
Deer Creek	150	83	88	Berryessa	1,602	1,538	96
Lahontan	291	268	131	Bullards Bar	930	477	90
Rye Patch	157	105	111	Folsom	1,010	612	100
Sevier Bridge	236	165	165	Isabella	570	214	117
Strawberry	274	211	181	McClure	1,026	678	122
Tahoe	732	513	116	Millerton	521	293	80
Utah	884	806	133	Oroville	3,484	2,016	76
Willard Bay	193	155	128	Pine Flat	1,013	558	94
				Shasta	4,500	3,574	104

Reservoir Storage Data Provided by Bureau of Reclamation, Corps of Engineers, Geological Survey, and water using organizations. Data from California and British Columbia provided by Department of Water Resources and Department of Lands, Forests and Water Resources, respectively.

age supplies. Storage in Utah is similar, with 124 percent.

## COLUMBIA BASIN

February storms brought marked improvement in the water supply outlook for the Columbia Basin, with the greatest increases in the mountain snowpack occurring in the Oregon-Washington area.

Considering the Columbia Basin as a whole, the March 1st snowpack was 5 percent above average. However, in the western portion of the Basin, snow in Oregon, Washington and western British Columbia ranges from about 15 to 45 percent above average. The snowpack on eastern watersheds heading near the Continental Divide in Idaho, Montana and eastern British Columbia is nearer average. Here it ranges from about 15 percent below average to 15 percent above.

Highest snow cover, percentagewise, lies on the Owyhee and Palouse rivers where it is near 60 percent more than usual amounts.

Most mountain soils remain dryer than normal.

The stream with the lowest runoff prospect is the Big Lost near Mackay, Idaho, forecast at 76 percent. Forecast for the Little Wood River is similar at 80 percent. The only other area where streamflow is anticipated to be materially less than average is along the Wyoming-Idaho border where the Salt, Greys and Snake near Heise are all expected to measure near 15 percent less than average during the April-September runoff period.

According to the British Columbia Water Resources Service, Department of Lands, Forests and Water Resources, inflow to Okanagan Lake will be more than three-fourths greater than usual. In the U.S.A. portion of the Basin, highest flow is expected from the Owyhee River, forecast at near a third above average.

Watersheds where streams are expected to yield from 10 to 30 percent above average amounts include British Columbia's Kettle and Similkameen rivers and all Washington streams draining from the Cascades except the Klickitat, White Salmon, Lewis and Cowlitz rivers. Also included in the 10 to 30 percent above bracket are Washington's Colville, Oregon's Deschutes, Crooked, Malheur, Burnt, Grande Ronde, and Umatilla rivers, Idaho's Bruneau, Palouse and Priest rivers, and Montana's upper Bitterroot river.

Remaining watersheds have current prospects of producing within 10 percent of average amounts.

Reservoir storage is near or above average.

## ALASKA

Heavy snowpacks continue to be the rule over much of eastern and southeastern Alaska. Conditions are much the same as observed one month ago. The winter's first snow surveys on the Yukon and Koyukuk watersheds have revealed very contrasting snowpacks. The upper Koyukuk drainage is 70 percent of normal while the upper Yukon has a heavy snowpack. Some snow courses high on the Yukon are the heaviest in ten years, while farther down stream the snow is near average. The Copper drainage now has 60 percent more than its average snowpack, while the Chena stands at 10 percent above normal. Snow in the Anchorage area is 40 percent above average, while on the Susitna River it is 30 percent above. Similarly, snow on the Kenai Peninsula is 40 percent greater than normal while certain areas of the southeastern region of the state are about 30 percent above normal.

## CALIFORNIA

The California Department of Water Resources, coordinating agency for snow surveys and water supply forecasting in California, reports that there has been considerable improvement during the last month in California's water supply prospects for 1975. Heavy precipitation and snow accumulation during the first two weeks in February have increased runoff forecasts for the April through July period by 15 to 40 percent over a month ago. Forecasts now range from a low of 55 percent of normal for the Tule River in the San Joaquin Valley, to a high of 110 percent of normal for the Pit River in the Sacramento Valley. Most streams in the Central Valley north of the Tuolumne Basin are forecasted slightly above normal, while the Merced through the Kern River Basins continue to be forecasted below normal. In the Lahontan area, all streams are expected to yield near normal runoff.

SNOWPACK data from March 1 snow surveys showed an increase during February that boosted the pack to near or above normal conditions throughout the northern half of the State. Although smaller increases occurred, the snow water content approached normal in the southern Sierra.

PRECIPITATION during February was very heavy in the Sacramento and North Coast basins, averaging between 175 and 180 percent of normal for the month. Although storm intensities tapered off to the south, precipitation in the San Joaquin Valley still ranged from well above normal in the northern portion to near normal on the southern valley floor. South Coast and southern Lahontan areas, however, experienced far below normal precipitation during February. Except for these areas, February storms broke the four-month dry trend, and statewide precipitation for the water year to date (October through February) is now 80 percent of normal.



RUNOFF during February was 125 percent of normal statewide, but varied widely between river basins because of variations in storm intensities. Runoff from Sacramento Valley streams was near normal during February, while further south most San Joaquin Valley streams had less than normal flows. All Coastal basins, except in the south, experienced over 150 percent of average flows for the month. Runoff deficits were most severe in South Coastal and southern San Joaquin Valley streams. Runoff totals for the water year to date remain below average throughout the State except in the Central Coastal area.

RESERVOIR storage showed some improvement during the month, gaining 1.75 million acre-feet during February in the 121 major reservoirs used for reporting purposes. In the Central Valley, storage is now 15 million acre-feet, a gain of 1.4 million acre-feet during the last month and 96 percent of average storage for March 1. Central Valley reservoir storage lags by almost 2.3 million acre-feet the storage of one year ago, with most of this lag attributable to less storage in San Joaquin Valley reservoirs. Colorado River storage projects were storing 137 percent of average supplies on March 1.





# EXPLANATION of STREAMFLOW FORECASTS

All flows are observed flows except as adjusted for: 1/ Storage change in Lake Sherburne. 2/ Storage change in Lima and Clark Canyon reservoirs. 3/ Storage change in Hebgen Lake. 4/ Storage change in Gibson Reservoir and measured diversions. 5/ Storage change in Two Medicine, Four Horns, Lake Francis and Swift reservoirs. 6/ Storage change in Canyon Ferry and Tiber reservoirs. 7/ Changes as indicated in (6/), (8/), plus storage change in Fort Peck. 8/ Storage change in Boysen, Buffalo Bill, Bull Lake and Yellowtail reservoirs. 9/ Storage change in Buffalo Bill Reservoir plus Heart Mountain diversion. 10/ Storage change in Pilot Butte and Bull Lake reservoirs plus Wyoming canal diversion.

11/ Changes indicated in (10/) plus storage change in Boysen Reservoir. 12/ Plus diversions to Cache LaPoudre. 13/ Plus by-pass to power plants. 14/ Minus diversion thru Gumlick Tunnel. 15/ Storage change in Price Reservoir. 16/ Minus diversions from North Platte, Laramie and Colorado rivers plus measured diversions above station. 17/ Storage change in Clear Creek, Twin Lakes and Turquoise reservoirs minus diversions from Colorado River. 18/ Storage change in Rio Grande, Santa Maria and Continental reservoirs. 19/ Storage change in El Vado and Abiquiu reservoirs. 20/ Storage change in Platoro Reservoir.

21/ Storage change in Grandby Reservoir as furnished by U.S.B.R. plus diversions by Adams Tunnel and Grand River Ditch. 22/ Changes as indicated in (21/) plus diversions thru Roberts, Gumlick and Moffat tunnels and storage change in Dillon, Homestake, Williams Fork, Green Mountain and Willow Creek reservoirs. 23/ Changes indicated in (22/) and (26/). 24/ Storage change in Blue Mesa Reservoir. 25/ Changes indicated in (24/), (30/) and (35/) and storage change in Lake Powell. 26/ Diversions to Arkansas River plus storage change in Ruedi Reservoir. 27/ (Inflow record as computed by U. S. Bureau of Reclamation.) 28/ Storage change in Taylor, Blue Mesa and Morrow Point reservoirs. 29/ Storage change in Fontenelle Reservoir. 30/ Storage change in Flaming Gorge Reservoir.

31/ Plus diversion through Duchesne Tunnel. 32/ Storage change in Moon Lake Reservoir. 33/ Storage change in Scofield Reservoir. 34/ Storage change in Joe's Valley Reservoir. 35/ Storage change in Navajo Reservoir. 36/ Plus U. P. & L. Co. tailrace and Logan, Hyde Park and Smithfield canals. 37/ Minus diversions thru Duchesne Tunnel and Weber-Provo Canal. 38/ Storage change in Lake Tahoe and Boca reservoirs (Forecast by Truckee Basin Committee.) 39/ Storage change in Bridgeport Reservoir. 40/ Corrected for major upstream impairments -- represents simulated natural flow conditions.

41/ Storage change in Priest Lake. 42/ Storage change in Coeur d'Alene Lake and diversions by Spokane Valley Farms Co. and Rathrum Prairie canals. 43/ Storage change in Lake Chelan. 44/ Storage change in Jackson Lake. 45/ Storage change in Jackson Lake and Palisade reservoirs. 46/ Storage change in Jackson Lake, Palisades, Island Park, Henry's Lake, Grassy Lake plus diversions between Heise and Blackfoot. 47/ Storage change in Henry's Lake and Island Park reservoirs. 48/ Storage change in MacKay Reservoir and diversion in Sharp Ditch. 49/ Combined flow Big Wood near Bellevue and Camas Creek near Blaine. 50/ Storage change in Arrowrock, Anderson Ranch and Lucky Peak reservoirs.

51/ Storage change in Wild Horse Reservoir. 52/ Storage change in Cascade and Deadwood reservoirs. 53/ Storage change in Keechelus, Kachess and CleElum reservoirs plus diversion by Kittitas Canal. 54/ Changes indicated in (52/) plus storage change in Bumping and Rimrock Lakes plus diversion by Roza, Union Gap, New Reservation, Old Reservation and Sunrise canals. 55/ Storage change in Bumping and Rimrock lakes and diversions by Tieton, Selah Valley, Wapatox canals and City of Yakima. 56/ Storage change in Merwin, Yale and Swift reservoirs. 57/ Storage change in Mayfield Reservoir.



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